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ABSTRACT

The relationships between the grade level of entry into Title I treatment, the need for subsequent treatment, and third grade reading achievement were investigated. In addition, the relationships between pattern of Title I treatment, third grade achievement, and Kuhlmann-Anderson Verbal IQ were studied. The pattern of Title I entry is defined as the entry level treatment plus all subsequent treatment. Third grade Metropolitan Achievement Test Scores and Kuhlmann-Anderson Verbal IQ scores were also compared for Title I and non-Title I kindergarten groups. All-day and half-day kindergarten programs were compared. To the extent that treatment beyond entry level is a legitimate criterion, kindergarten was a more effective level of entry treatment than preschool, since twice as many preschoolers received treatment within the subsequent two years. Early treatment (preschool or kindergarten) appeared to have more positive effects on third grade reading and Kuhlmann-Anderson Verbal IQ than later treatment (grades one and two). Of the one-year treatments, all-day kindergarten had the greatest positive effect on achievement. However, for multiple treatment years, preschool appeared to have a more positive effect than all-day kindergarten. (Author/MV)

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Effects of Entry Level and Pattern of Title I Treatment on Third Grade Measures of Achievement

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One focus of this paper is to study the relationship between the level of entry into Title I treatment and (a) the need for subsequent treatment and (b) third grade achievement. It may be inferred that the more effective the level of entry treatment, the fewer number of years of subsequent treatment needed. Four levels of entry are defined for this study: preschool, kindergarten, grade one, and grade two.

A second focus is the study of the relationship between pattern of Title I treatment and (a) third grade achievement and (b) Kuhlmann-Anderson Verbal IQ. By pattern of Title I treatment we mean the entry level treatment plus all subsequent treatment. Consider illustrations of pattern of treatment: given preschool as the level of entry, three examples of treatment patterns are: 1) preschool only, 2) preschool plus kindergarten, and 3) preschool plus grade one.

A third focus is the comparison of third grade achievement test scores and Kuhlmann-Anderson Verbal IQ scores for Title I and non-Title I kindergarten groups.

Objectives. Specifically, the objectives of this study are to explore the relationships among:

1. Level of entry to Title I treatment and
   a. years of subsequent Title I treatment,
   b. third grade reading achievement,
   c. Kuhlmann-Anderson Verbal IQ, third grade measure.
2. Pattern of Title I treatment and third grade achievement.
3. Kindergarten treatment (Title I and non-Title I) and
   a. third grade achievement,
   b. Kuhlmann-Anderson Verbal IQ.

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Sample. The sample consists of all students in Title I programs during a four-year enrollment, preschool through grade two. The sample contains two cohorts, the first entering the preschool period in 1971-72 (A cohort) and the second entering the preschool period one year earlier (B cohort).

Data. Ordinarily, students are pretested before entering a Title I program in the fall and post-tested in the spring. These scores are referred to as pre and post treatment scores. Results of city-wide testing carried out during the third grade were also used in this study. Subtests of the Metropolitan Achievement Test were used for both Title I and city-wide testings.

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Results

Subsequent Treatment. One indicator of the effectiveness of entry level treatment is to consider the number of subsequent years of treatment received by the student. Eligibility for continuing in Title I is limited to students achieving below grade level. We considered two years as the minimum time for demonstrating need for subsequent treatment.

Forty-four percent of the preschool entrants received no further treatment during the subsequent two years. However, 85 percent of kindergarten entrants received no treatment during the two subsequent years (Table 1).

Table 1. Percentage of Students Receiving Treatment During Two Years Subsequent to Level of Entry, A Cohort.

Level of Entry Treatment	No Subsequent Treatment	One of Two Subsequent Years	Both of Two Subsequent Years
Preschool	44%	44%	12%
Kindergarten	85	6	9

Conclusion, Objective 1a. To the extent that treatment beyond entry level is a legitimate criterion, kindergarten is a more effective level of entry treatment than preschool since twice as many preschoolers received treatment within the subsequent two years.

Achievement. Information regarding the effects of level of entry on achievement may be found by ranking average MAT pattern scores within the total number of treatment years.

One Treatment Year. For students having only one year of Title I treatment, ADK entrants had at least a seven-point (raw score) advantage over preschool, grade one, or grade two (Table 2). Advantage of preschool over grades one and two, stronger in the A cohort, may also be noted.

Table 2. One Year Title I Treatments and Third Grade Reading Achievement, Metropolitan Achievement Test (Primary II).

Title I Treatment Pattern	Cohort	N	Percent Tested	Word Knowledge	Reading	Total Reading
All-Day Kindergarten	A	200	62%	26	29	57
Preschool	A	284	70	24	25	50
Grade 1	A	140	69	20	21	41
Grade 2	A	104	79	19	20	39
Preschool	B	176	76	19	23	41
Grade 1	B	158	78	18	22	40
Grade 2	B	58	76	16	20	38

Two Treatment Years. For students receiving two years of treatment, the superiority of the pattern preschool plus ADK over grade one plus grade two is clear in both cohorts. The difference between the patterns being 10 raw score points in the A Cohort and 8 in the B Cohort (Table 3).

Table 3. Two Year Title I Treatments and Third Grade Reading Achievement, Metropolitan Achievement Test (Primary II) Raw Score.

Title I Treatment Pattern	Cohort	N	Percent Tested	Word Knowledge	Reading	Total Reading
Preschool + ADK	A	214	100%	25	25	50
ADK + Grade 2	A	4	75	21	26	46
ADK + Grade 1	A	9	56	22	20	42
Grade 1 + Grade 2	A	176	74	19	21	40
Preschool + Grade 1	B	131	80	22	26	48
Preschool + ADK	B	80	90	19	24	44
Grade 1 + Grade 2	B	56	80	17	19	36
Preschool + Grade 2	B	11	100	17	17	34

For the three year treatments (A Cohort) all patterns with preschool as the level of entry exceeded the single pattern with ADK as the entry level. These figures are shown in Table 4.

Table 4. Three Year Title I Treatments and Third Grade Reading Achievement, Metropolitan Achievement Test (Primary II) Raw Score.

Title I Treatment Pattern	Cohort	N	Percent Tested	Word Knowledge	Reading	Total Reading
PS + ADK + Grade 1	A	63	76%	24	27	51
PS + ADK + Grade 2	A	43	84	24	24	47
PS + Grade 1 + Grade 2	A	22	86	16	18	34
ADK + Grade 1 + Grade 2	A	21	62	15	16	31
PS + ADK + Grade 1	B	130	78	28	31	59
PS + Grade 1 + Grade 2	B	22	86	18	19	37

Kuhlmann-Anderson. Kuhlmann-Anderson Verbal IQ scores tended to decrease with later entry levels. The exception was all-day kindergarten. In the A Cohort, the preschool entrants had an average of 93; grade two entrants had an average of 86 (Table 5). The all-day kindergarten group had an average of 95.

Table 5. Kuhlmann-Anderson Verbal IQ by Level of Entry into Title I for A Cohort.

Level	IQ*	Number in Cohort
Preschool	93	582
All-Day Kindergarten	95	234
Grade 1	87	176
Grade 2	86	104

*Scores on the basis of 60 to 80 percent of cohort.

Conclusions, Objectives 1b and 1c. Early treatment (preschool or kindergarten) appears to have more positive effects on third grade reading and Kuhlmann-Anderson Verbal IQ than later treatment (grades one and two). Of the one year treatments, all-day kindergarten had the greatest positive effect on achievement.

Pattern

In this section, patterns with consecutive years of treatment are compared to patterns with interspersed non-treatment years. With two years of treatment (see Table 3), results are conflicting. In A Cohort there were three back-to-back patterns (PS + ADK, ADK + Grade 1, and Grade 1 + Grade 2) and one pattern with an interspersed non-treatment year. In this cohort results seem to be more closely related to level of Title I intervention than to pattern of treatment. Results from the B Cohort are similarly non-revealing. With three years of treatment, the consecutive years appeared superior. PS + ADK + Grade 1 was clearly superior to either PS + Grade 1 + Grade 2 or PS + ADK + Grade 2.

Conclusions, Objective 2. Title I intervention with multiple years of consecutive years of treatment appears superior to intermittent treatment.

Kindergarten

In this section a specific Title I treatment (all-day kindergarten) is compared to a non-Title I treatment (half-day kindergarten). In order to compare the effects of half-day and all-day kindergarten, test scores for otherwise identical treatment patterns were computed and are illustrated in Table 6.

Table 6. Effects of All-Day Kindergarten on Reading Achievement (City-Wide Testing Results) by Treatment Pattern for A Cohort.

Pattern	Reading (N) 1/2-day	(N) all-day	Word Knowledge 1/2 day	all-day	Total Reading 1/2 day	all-day
PS + KDG	2.5(284)	2.5(214)	2.5	2.6	2.5	2.5
PS + KDG + Gr 1	2.5(7)	2.6(63)	2.3	2.5	2.4	2.5
PS + KDG + Gr 2	---	2.4(43)	---	2.5	---	2.5
PS + KDG + Gr 1 + Gr 2	2.1(22)	2.1(34)	2.2	2.3	2.2	2.2
KDG	2.3(46	2.6(200)	2.4	2.3	2.3	2.8
KDG + Gr 1	2.3(122)	2.3(9)	2.4	2.5	2.3	2.3
KDG + Gr 2	2.2(68)	2.5(4)	2.4	2.5	2.3	2.4
KDG + Gr 1 + Gr 2	2.3(159	2.1(21)	2.4	2.1	2.3	2.1

Conclusion, Objective 3a. All-day kindergarten appeared to be slightly better than half-day kindergarten in multiple treatment patterns and much better when the only Title I treatment was ADK. When preceded by preschool, all-day kindergarten apparently added two points to the Kuhlmann-Anderson Verbal IQ (Table 7).

Table 7. Effects of All-Day Kindergarten on Kuhlmann-Anderson Verbal IQ, by Treatment Pattern for A Cohort.

Pattern	Half-Day Kdg. IQ	Half-Day Kdg. N	All-Day Kdg. IQ	All-Day Kdg. N
Preschool + Kindergarten	94	211	96	170
Preschool + Kindergarten + Grade 1	87	7	95	52
Preschool + Kindergarten + Grade 2	85	63	94	36
Preschool + Kindergarten + Grade 1 + Grade 2	84	18	85	25
Kindergarten	90	30	96	23
Kindergarten + Grade 1	90	80	97	5
Kindergarten + Grade 2	86	48	86	2
Kindergarten + Grade 1 + Grade 2	--	--	87	15

Conclusion, Objective 3b. It appeared that all-day kindergarten had positive effects on the order of from one to nine points on the Kuhlmann-Anderson Verbal IQ scores.

Summary of Conclusions

To the extent that treatment beyond entry level is a legitimate criterion, kindergarten is a more effective level of entry treatment than preschool since twice as many preschoolers received treatment within the subsequent two years.

Early treatment (preschool or kindergarten) appears to have more positive effects on third grade reading and Kuhlmann-Anderson Verbal IQ than later treatment (grades one and two). Of the one-year treatments, all day kindergarten had the greatest positive effect on achievement. However, for multiple treatment years, preschool appeared to have a more positive effect than ADK.

All-day kindergarten appeared to be slightly better than half-day kindergarten in multiple treatment patterns and much better when the only Title I treatment was ADK. Title I intervention with multiple years of consecutive years of treatment appears to be superior to intermittent treatment. It appeared that ADK had positive effects of from one to nine points on the Kuhlmann-Anderson Verbal IQ scores.

Significance

Since it appears that all-day kindergarten alone is as effective as preschool plus all-day kindergarten for a sizable number of students, better screening techniques could be developed and applied so as to select those most in need of preschool.